

Control base isolation structure (BIS) with a novel passive tuned mass damper inerter (TMDI) device

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Abstract: The recent earthquakes history shows that the conception of resistant, safe and economical structures is daily challenges for structural engineers among the newest vibration control devices figures the inerter which is a device capable of developing a large fictive mass using rotational inertia in this research work a classical tuned mass damper TMD is compared with an inerter based mass damper TMDI which consists of tuned mass damper which a hybrid mass ,real and fictive .the two devices are used to control the vibration of a base isolated structure BIS submitted to earthquake excitations .for this purpose , a ten storey structure is equipped with a TMD and TMDI alternatively and a time history analysis is performed under different earthquake records .the obtained results shows a good performance of the structure equipped with a TMD in terms of base and top displacement as well as the inter storey drift and base shear force .

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